

CLIMATE, CONFLICT AND SOCIETY: CHANGING RESPONSES TO WEATHER EXTREMES IN NINETEENTH CENTURY ZULULAND

Abstract: Changing climates affect human societies differently depending on societal structures, cultural perceptions and their relative vulnerability and resilience. In this study, we explore the complex relationship between climate, conflict and society in nineteenth century Zululand. The paper first reviews current debates surrounding the links between climatic change, societal transformation and the rise of the Zulu Kingdom from the late-eighteenth to early-nineteenth centuries. It then considers new empirical evidence relating to conflict and socio-economic changes at a local scale in Zululand from the early-mid-nineteenth century onwards, using a combination of unpublished archival materials written by missionaries and other observers, together with oral histories and traditions. Our analysis highlights how changing precipitation patterns, especially towards drier conditions, may have contributed to changes in societal responses, including dominant narratives about rain-control, the migration and dissolution of society, and conflicts and unrest. We suggest that temporal differences in these responses were contingent upon the role of leaders, power structures, and the willingness and ability of leaders to yield this power. The case of nineteenth century Zululand exemplifies the complexity of environment-society interactions, and strengthens the call for a thorough scrutiny of the narratives of social unrest in specific socio-cultural contexts.

Keywords: Conflict; rainfall variability; Zululand; nineteenth century; missionary sources

Introduction: Social unrest and climate

The relationship between climate and society – both today and in history – has been a source of debate within academia and policy circles for a considerable time. In the latter arena, it has been suggested that there is a strong relationship between changing climate, especially towards drier conditions, and increased levels of social unrest and conflict. The assumption of a strong link between climate change and conflict was most clearly manifested in the joint award of the 2007 Nobel peace prize to Al Gore and the Intergovernmental Panel on Climate Change (IPCC). The rationale for the award, made with direct reference to the Sahel region, was that global warming fuelled violence and conflict. More recently, UN Secretary-General Ban Ki-moon has claimed that there is a strong connection between global warming and the Darfur conflict, while suggestions of a link between drought and the ongoing Syrian civil war have received widespread publicity.¹

According to Gemenne et al., this way of thinking is part of a neo-environmental deterministic narrative that explains societal change as a direct function of environmental drivers (see also arguments by Homer-Dixon). There is, however, very little scientific consensus on the connection between climate change and social unrest, and researchers disagree on both the statistical correlations and causal dynamics of such claims. Hsiang et al., for example, argue that natural climate cycles of the El Niño-Southern Oscillation may have a significant influence on war and peace around the Equator, with tropical countries facing double the risk of armed conflict and civil war during warm, and in many areas of the tropics, dry, El Niño years than during cooler La Niña phases. Adano et al. and Butler and Gates, in contrast, suggest from studies in East Africa that conflicts and killings, typically over water and/or grazing rights, tend to increase in periods of plentiful rainfall. Hendrix and Salehyan further argue that rainfall deviation in either direction may trigger inter-communal conflict, while Gleditsch concludes that there is little evidence that long-term climate change or short-term climate variability has had any observable effects on global patterns of conflict.²

From these brief examples, it is clear that more detailed analyses of past conflicts are required to understand the complex relationships between the multiple factors, including climate change/variability, which can lead to social unrest. Human responses to climate variability

¹ For discussion of climate-society interactions in academic and policy circles see Simon Dalby, 'Climate Change: The New Dimensions of Environmental Security', *The RUSI Journal* 158 (2013): 34-43. For a discussion on conflict and climate in the Sahel, see Hugo Verhoeven, 'Climate Change, Conflict and Development in Sudan: Global Neo-Malthusian Narratives and Local Power Struggles', *Development and Change* 42 (2011): 679-707; Tor Benjaminsen et al., 'Does climate change drive land-use conflicts in the Sahel?', *Journal of Peace Research*, 49 (2012): 97-111. For drought and conflict in Syria, see Peter Gleick, 'Water, drought, climate change, and conflict in Syria', *Weather, Climate and Society* 6 (2014): 331-340; Colin Kelley et al., 'Climate change in the Fertile Crescent and implications of the recent Syrian drought', *PNAS*, 112 (2015): 3241-3246.

² François Gemenne et al., 'Climate and security: evidence, emerging risks, and a new agenda', *Climatic Change* 123 (2014): 1-9. Thomas Homer-Dixon, 'Environmental scarcities and violent conflict: Evidence from cases', *International security* 19 (1994): 5-40. Solomon Hsiang et al., 'Civil conflicts are associated with the global climate', *Nature* 476 (2011): 438-441; Warrio Adano et al., 'Climate change, violent conflict and local institutions in Kenya's drylands', *Journal of Peace Research* 49 (2012): 65-80; Christopher Butler and Scott Gates, 'African range wars: Climate, conflict and property rights', *Journal of Peace Research* 49 (2012): 23-34; Cullen Hendrix and Idean Salehyan, 'Climate Change, rainfall, and social conflict in Africa', *Journal of Peace Research* 49, (2012), 35-50. Nils Gleditsch, 'whither the weather? Climate change and conflict', *Journal of Peace Research* 49 (2012): 3-9.

may feed into ecological systems, producing any number of multidirectional effects in both time and space. As Costanza et al. illustrate, extreme drought might trigger both societal ‘collapse’ and the inventive management of water through irrigation. Furthermore, as highlighted by Endfield, changing climate affects human societies differently depending on the prevailing social structures and hierarchies, and their relative resilience and vulnerability. Butzer notes that to understand how, for instance, harvest failures lead to social unrest and conflict, we need to look at the linkages between historical, cultural, political and demographic factors within specific localities, and particularly the roles of leaders, elites and ideology, before we can explain any causality. Different societies may respond to climate stresses in different ways. Coombes and Barber argue, for example, that major events do not always require major causes, and that, in marginal areas, only slight environmental changes might have significant impacts on the resource base. Understanding how human-environment systems have operated through history might further benefit decision-making within contemporary society, and may go some way towards challenging mono-causal explanations and oversimplified correlations. As Butzer and Endfield note, an emphasis on complexity is important, and historical examples must be treated with caution to avoid simple cause-effect relationships with respect to the societal effects of predicted environmental scenarios. According to Butzer, the issue is “not whether climatic change is relevant for socio-historical change, but how we can deal more objectively with coupled systems that include a great tapestry of variables, among which climatically triggered environmental change is undeniably important”.³

The historical case of nineteenth century Zululand

In this paper, we examine the case of nineteenth century Zululand – now part of present-day KwaZulu-Natal province, South Africa (figure 1.) – in order to understand how historical evidence from this region and period can shed light on the relationship between climate variability and social unrest. Specifically, we explore the impacts of droughts, and how they may or may not be linked to conflict and social unrest at the local level. The choice of Zululand for this study is based on three considerations. First, the region underwent a series of major social, economic and political changes during the 1800s; these included periods of mass migration, state formation and transformations in political power of both indigenous and colonial origin, in many cases accompanied by widespread unrest and conflict (see for instance Guy and Wright). Second, the climatic background against which these changes occurred is unusually well-resolved through a combination of dendroclimatological and documentary-based rainfall reconstructions (see Nash et al.). Third, Zululand is a region for which a significant body of historical documentary and oral material exists, particularly from the mid-nineteenth century onwards, allowing for careful cross-referencing of potential causal linkages. The richness and continuity of these materials, therefore, permits us to explore climate-society relationships in far greater detail than the late-eighteenth/early-nineteenth

³ Robert Costanza et al., ‘Sustainability or Collapse: What Can We Learn from Integrating the History of Humans and the Rest of Nature?’, *Ambio* 36 (2007): 522-527. Georgina Endfield, ‘The resilience and adaptive capacity of social-environmental systems in colonial Mexico’, *PNAS* 109 (2012): 3676-3681. Karl Butzer, ‘Collapse, environment, and society’, *PNAS* 109 (2012): 3632-3639. Paul Coombes and Keith Barber, ‘Environmental determinism in Holocene research: causality or coincidence?’, *Area* 37 (2005): 303-311. Karl Butzer and Georgina Endfield, ‘Critical perspectives on historical collapse’, *PNAS* 109 (2012): 3628-3631. Karl Butzer, ‘Collapse, environment, and society’, *PNAS*, 109 (2012): 3633-3639.

century timeframe of the majority of historical studies in the region (e.g. Ballard and Eldredge).⁴

Figure 1: Map showing key locations referred to in the text against present-day boundaries of KwaZulu-Natal province, South Africa.



The remainder of the paper is divided into four main sections. After a summary of historical sources and methods, we review debates surrounding the relationship between climate

⁴ Jeff Guy, 'Ecological factors in the rise of Shaka and the Zulu Kingdom', in Shula Marks & Anthony Atmore (eds.), *Economy and Society in Pre-Industrial South Africa*, pp. 102-119 (London: Longman Group, 1980); John Wright, 'Turbulent times. Political transformation in the North and East', in Carolyn Hamilton et al. (eds.), *The Cambridge History of South Africa, Vol. 1. From the Early Times to 1885*, pp. 211-252 (Cambridge: Cambridge University Press, 2010). David Nash et al., 'Annual and seasonal rainfall variability in southeast Africa during the nineteenth century reconstructed from documentary sources' *Climatic Change*, 134 (2016): 605-619. Charles Ballard, 'Drought and Economic Distress: South Africa in the 1800s', *The Journal of Interdisciplinary History*, 17 (1986): 359-387; Elizabeth Eldredge, 'Sources of Conflict in Southern Africa, c. 1800-30: The 'Mfecane' Reconsidered', *Journal of African History* 33 (1992): 1-35. Elizabeth Eldredge, *The Creation of the Zulu Kingdom, 1815-1828: War, Shaka and the Consolidation of Power* (Cambridge: Cambridge University Press, 2014).

variability and the formation of the Zulu Kingdom – the polity of primary interest in this article – in the late-eighteenth and early-nineteenth centuries, drawing mainly upon previously published material. We then consider new empirical evidence relating to conflict, socio-economic changes and responses to rainfall extremes in Zululand from the early-mid-nineteenth century onwards; this is mostly derived from unpublished archival material written by missionaries and other pre-colonial and colonial observers, and to a lesser extent, oral histories and traditions. Our focus in this section is on small scale, internal conflicts and unrest within the Zulu Kingdom, as opposed to larger scale external wars (e.g. with the British, Voortrekkers or Swazi), since the latter often have wider political-economic explanations strongly linked to colonial expansion and/or control. By focusing on local, internal conflicts in relation to climate variability, we thus aim to disentangle the causal chains between climatic events and social unrest by identifying: (i) how climate extremes affected people within the Zulu Kingdom, (ii) how these events were interpreted culturally, and (iii) the various responses they engendered. We conclude with a discussion of the complex linkages between climate variability, unrest and conflict in nineteenth century Zululand, and point to directions for future historical climate-conflict research.

Historical sources and methodology

The empirical materials used for this investigation were compiled as part of one of three case studies within the larger project "Societal responses to El Niño-related climate extremes in southern Africa." Historical collections relating to nineteenth century Zululand and adjacent areas of the former Natal Province were scrutinised in ten different archives in Germany, Norway, South Africa, the UK and the USA (Table I). The collections included English-, German- and Norwegian-language materials written mainly by missionaries, explorers, farmers and other colonists, representatives of colonial authorities, and journalists. The range of materials consulted included published sources, such as historical books, travelogues and newspapers, as well as extensive unpublished collections of letters, reports, journals, personal papers and weather diaries.

Table I: Details of main archival collections consulted for former Zululand and Natal.

Name of archive	Key collections consulted	Coding used in endnotes
National Archives, London	Nineteenth century British Colonial Office materials	n/a
British Library, London	Nineteenth century monographs/travelogues	n/a
Rhodes House (Bodleian Library), University of Oxford	Society for the Propagation of the Gospel materials for 1853 onwards	USPG
Royal Commonwealth Society Library, University of Cambridge	Official 'Blue Books' and related statistical data	n/a
National Library of Scotland, Edinburgh	Church of Scotland Board of World Mission collection containing materials for 1889 onwards	NLS

Evangelisch-lutherisches Missionswerk Niedersachsen, Archiv, Hermannsburg, Germany	Hermannsburg Lutheran Missionary Society materials for 1854 onwards	ELM
Norwegian Mission Society archive, Stavanger, Norway	Norwegian Mission Society materials for 1840 onwards	MHS
Houghton Library, Harvard University, USA	American Board of Commissioners for Foreign Missions papers for 1835 onwards	ABC
Msunduzi Municipal Library, Pietermaritzburg, South Africa	Collections of nineteenth century books and newspapers, including the full run of the <i>Natal Witness</i> from 1846 to 1900	n/a
Killie Campbell Africana Library, Durban, South Africa	Books, manuscripts and diaries relating to Zululand and Natal during the nineteenth century	KCAL

Documents from each of the collections were analysed systematically, drawing upon methodologies established in previous research into southern African climate history by Endfield and Nash. Individual items were scrutinised for accounts of climate-related conditions and any associated societal impacts and responses. These were recorded verbatim and, where necessary, transcribed into English. For the purposes of this study, the most important societal observations included commentaries on customs and beliefs, local and/or regional population dispersal, social unrest, local and more widespread conflict, and climatic narratives. In total, 7220 individual quotations spanning the period 1836-1900 were transcribed and entered into a custom built database. This permitted historical information to be sorted geographically and chronologically to facilitate the identification of spatial or temporal variations.⁵

The most valuable material for exploring the linkages between climatic variability, social unrest and conflict came from the writings of missionaries. Although there are mentions of other polities, much of this material focusses upon observations of, and interactions with, people residing under Zulu authority; this emphasis shapes the narratives within this paper. The first mission stations in the region were established near Port Natal (now Durban) in 1836 by the American Board of Commissioners for Foreign Missions, with inland locations in Zululand following shortly (see Lulat). Other mission stations were established from the early-1840s by organisations including the Norwegian Mission Society, Hermannsburg Missionary Society and the Society for the Propagation of the Gospel. Many missionaries lived in rural areas for several years and sometimes decades. They were, therefore, in a unique position to

⁵ For more on the methodology employed, see Georgina Endfield and David Nash, 'Missionaries and morals: climatic discourse in nineteenth-century central Southern Africa,' *Annals of the Association of American Geographers* 92 (2002): 727-742; Georgina Endfield and David Nash, 'Drought, desiccation and discourse: missionary correspondence and nineteenth-century climate change in central southern Africa,' *Geographical Journal*, 168 (2002): 33-47; David Nash and Georgina Endfield, 'A 19th century climate chronology for the Kalahari region of central southern Africa derived from missionary correspondence,' *International Journal of Climatology* 22 (2002): 821-841; David Nash and Georgina Endfield 'Splendid rains have fallen: links between El Niño and rainfall variability in the Kalahari, 1840-1900', *Climatic Change* 86 (2008): 257-290.

report on weather extremes, changes in local climate, social-political organisation and conflicts over longer timespans. In many areas, their accounts of local customs, traditions and land-use strategies provide the only written insight into rural daily life and its interaction with climatic variability. However, when interpreting missionary materials, the positionality of the writer and their intended audience must be taken into consideration. Indeed, although many of the missionaries became well accustomed to, and partly integrated into, local conditions, they nonetheless remained 'outside' observers.⁶

Historical documentary sources were supplemented by examination of predominantly Zulu oral histories and traditions compiled within the *James Stuart Archive*. This published collection of oral material consists of recorded interviews conducted by James Stuart, a Zulu interpreter, clerk to the Resident Commissioner, and Chief Magistrate in Pietermaritzburg between the 1890s and 1920s. Stuart's interest in Zulu history emerged from his need to understand the cultural contexts and practices relevant to the court cases he administered, and over the course of his time in Natal, Zululand and Swaziland, he interviewed over 150 men and a handful of women at his home. The eldest of these interviewees had personal memories of Shaka and the events that took place during his rule (see below), though most were born after this time and their testimonies thus relate to the mid-late-nineteenth century. As with the documentary sources, the oral evidence is permeated by exaggeration and fictional elements. As Eldredge notes, however, Stuart was scrupulous in the recording of this evidence, particularly in the presence of third parties, recorded what he believed were exaggerations as emphasis rather than fact, and questioned inconsistency where it was present. Oral evidence on customs, beliefs and climatic narratives therefore provides an important corroborative resource for the far greater volume of European sources.⁷

Climate, conflict and state formation in early-nineteenth century Zululand

A number of scholars have considered the interaction between climate and conflict in early-nineteenth century Zululand. Attention has focussed in particular on the role of climatic change and drought in the intensification of conflict and migration that affected much of southeast Africa at this time, as well as on the formation of the Zulu kingdom under its renowned ruler, Shaka, during the second decade of the nineteenth century.⁸ These events

⁶ For more details on the establishment of the different mission stations, see Y.G.-M Lulat, *United States relations with South Africa: a critical overview from the colonial period to the present* (New York: Peter Lang Publishing, 2008); Frederick Hale, *Norwegian missionaries in Natal and Zululand: selected correspondence 1844-1900* (Cape Town: Van Riebeeck Society, 1997); Ernst-August Lüdemann, (ed.) *Vision: Gemeinde weltweit - 150 Jahre Hermannsburger Mission und Ev. Luth. Missionswerk in Niedersachsen* (Hermannsburg: Verlag der Missionshandlung, 2000); Charles Pascoe, *Two hundred years of the SPG: an historical account of the Society for the Propagation of the Gospel in Foreign Parts, 1701-1900* (London: Society for the Propagation of the Gospel, 1901).

⁷ Colin de B. Webb and John Wright, *The James Stuart Archive of Recorded Oral Evidence relating to the History of the Zulu and Neighbouring Peoples, 6 vols.* (Durban: Killie Campbell Africana Library, 1976-2014). Elizabeth Eldredge, *Kingdoms and Chieftdoms of Southeastern Africa: Oral Traditions and History, 1400-1830* (Rochester: University of Rochester Press, 2015).

⁸ See Charles Ballard, 'Drought and Economic Distress: South Africa in the 1800s', *The Journal of Interdisciplinary History* 17 (1986): 359-387; Elizabeth Eldredge, 'Sources of Conflict in Southern Africa, c. 1800-30: The 'Mfecane' Reconsidered', *Journal of African History* 33 (1992): 1-35; Thomas Huffman, 'The archaeology of the Nguni past', *Southern African Humanities* 16 (2004): 79-111; Karin Holmgren and Helena Öberg, 'Climate change in southern and eastern Africa during the past millennium and its implications for societal development', *Environment, Development and Sustainability* 8 (2006): 185-195; Matthew Hannaford et al., 'Early-nineteenth-century southern

and the debate over climatic agency have been discussed at length elsewhere,⁹ though some background is necessary here if we are to contextualise the investigation of later-nineteenth century responses to rainfall extremes that follows.

The Zulu kingdom: origins and formation (1760s-1818)

Prior to the late-eighteenth century, archaeological records and sporadic written accounts from shipwrecked Portuguese, inform us that socio-political organisation across what came to be known as Zululand took the form of a number of relatively fluid, small-scale chiefdoms, each bound together by ritual practices, acts of allegiance and the redistribution of cattle from the chief to politically important followers. By the time detailed written accounts emerge from the region in the 1820s, however, the situation had changed dramatically. This was most clearly illustrated by the growth of inequality – both within chiefdoms through increased economic and social stratification, and between chiefdoms in terms of enlarged differences in territorial extent, population, and cattle holdings.¹⁰

In the Zululand area, the Ndwandwe under Zwide, the Mthethwa under Dingiswayo and the Qwabe under Phakathwayo had become the dominant chiefdoms by the beginning of the nineteenth century, while many smaller groups had fragmented or become incorporated into these larger polities. The success of these rulers was based in large part on the restructuring of the former military units of different lineages into unified age-graded groups termed *amabutho*; a system that perhaps partially emerged in response to competition over new trade opportunities at Delagoa Bay during the late-eighteenth century. This new system of social organisation weakened the influence of territorially based kinship relations and allowed for the subordination – both militarily and diplomatically – of smaller neighbouring chiefdoms.¹¹ In order to maintain and expand political power, ruling houses levied increased demands of cattle tribute upon individual homesteads, and as the need to replace cattle grew, so did cattle raiding. Indeed, Wright explains that raiding acquired a new dynamic in the early-nineteenth century with the rise of *amabutho*-based polities, and this eventually grew into full-scale conflict to accumulate more grazing land, as well as cattle itself.¹²

African precipitation reconstructions from ships' logbooks', *The Holocene*, 25 (2015): 379-390; Matthew Hannaford and David Nash, 'Climate, history, society over the last millennium in southeast Africa' *WIREs Climate Change*, 7 (2016): 370-392; James Gump, 'Ecological Change and Pre-Shakan State Formation', *African Economic History* 18 (1989): 57-75.

⁹ Elizabeth Eldredge, *The Creation of the Zulu Kingdom, 1815-1828: War, Shaka and the Consolidation of Power* (Cambridge: Cambridge University Press, 2014); Matthew Hannaford, 'The consequences of past climate change for state formation and security in southern Africa' (Ph.D. diss., University of Sheffield, 2015)

¹⁰ Tim Maggs, 'The Iron Age farming communities', in Andrew Duminy and Bill Guest, (eds.) *Natal and Zululand from Earliest Times to 1910. A New History*, pp. 28-48 (Pietermaritzburg: University of Natal Press, 1989). John Wright, 'Turbulent times. Political transformation in the North and East', in Carolyn Hamilton et al. (eds.), *The Cambridge History of South Africa, Vol. 1. From the Early Times to 1885*, pp. 211-252 (Cambridge, Cambridge University Press, 2010)

¹¹ Michael Mahoney, 'The Zulu kingdom as a genocidal and post-genocidal society, c. 1810 to the present', *Journal of Genocide Research* 5 (2003): 251-268. Elizabeth Eldredge, *The Creation of the Zulu Kingdom, 1815-1828: War, Shaka and the Consolidation of Power* (Cambridge: Cambridge University Press, 2014).

¹² This growth in conflict was conventionally termed as the '*mfecane*' ('the crushing'), though this term is now generally viewed as inseparable from the colonial era paradigm that implicated Shaka and the apparent destructive rise of the Zulu Kingdom as the sole cause of conflict, violence and migration, which thereby triggered the 'depopulation' of entire areas of southeast Africa and paved

In addition to changes in social organisation, a prime explanation for societal transformation in the Zululand area is responses to climatic change and extremes. Hall was the first to hypothesise that trends towards increased rainfall in Zululand from the mid-eighteenth century – towards the end of the Little Ice Age – contributed to an increase in agricultural productivity, and subsequently population density, as recorded in early traveller's writings and archaeological evidence. Furthermore, Hall, Hedges, Maggs, Huffman and Holmgren and Öberg all argue that the adoption of maize as a staple crop at this time of increased rainfall aided population growth, as maize has higher yields relative to the formerly dominant staples of sorghum and millet. Towards the end of the eighteenth century, however, a rapid decline in annual rainfall culminated in severe, multi-year droughts, which led to what became known as the '*mahlatlule* famine' – remembered in oral traditions as the time 'we were obliged to eat grass' – at the turn of the nineteenth century, and a later protracted drought during the 1820s.¹³ Hannaford et al. note that as these droughts impacted upon transformed vulnerability contexts, the severity of their impacts were likely to have been unprecedented. In particular, increased dependence on maize, which is more sensitive to water-deprivation than sorghum, together with a growing population, meant that local subsistence agriculture was more vulnerable than in previous droughts. Food shortages were, therefore, reached at an earlier stage of a prolonged drought, forcing a reliance on wild food resources (see Hannaford and Nash for a discussion).¹⁴

the way for settler expansion. It has become clear, however, that heightened conflict at this time has its roots in the changes that emerged from the mid-eighteenth century onwards, rather than the rise of Shaka's Zulu Kingdom. For more on the *mfecane* debate, see Julian Cobbing, 'The Mfecane as Alibi: Thoughts on Dithakong and Mbolompo', *The Journal of African History* 29 (1988): 487-519; Carolyn Hamilton, *The Mfecane Aftermath: Reconstructive Debates in Southern African History* (Johannesburg: Witwatersrand University Press, 1995); John Omer-Cooper, 'Has the Mfecane a future? A Response to the Cobbing Critique', *Journal of Southern Africa Studies*, 19 (1993): 273-294; Norman Etherington, *The Great Treks: The Transformation of Southern Africa 1815-1854* (Harlow: Pearson Education Limited, 2001); Alan Smith, 'Delagoa Bay and the Trade of South-Eastern Africa', in Richard Gray and David Birmingham (eds.), *Pre-Colonial African Trade*, pp. 265-289 (Oxford: Oxford University Press, 1970); David Hedges, 'Trade and politics in southern Mozambique and Zululand in the eighteenth and early nineteenth centuries' (Ph.D. diss., School of Oriental and African Studies, University of London, 1978); John Wright, 'Turbulent times. Political transformation in the North and East', in Carolyn Hamilton et al. (eds.), *The Cambridge History of South Africa, Vol. 1. From the Early Times to 1885*, pp. 211-252 (Cambridge: Cambridge University Press, 2010); Thomas Huffman, 'The archaeology of the Nguni past', *Southern African Humanities* 16 (2004): 79-111; Elizabeth Eldredge, 'Sources of Conflict in Southern Africa, c. 1800-30: The 'Mfecane' Reconsidered', *Journal of African History* 33 (1992): 1-35; John Wright, 'Turbulent times. Political transformation in the North and East', in Carolyn Hamilton et al. (eds.) *The Cambridge History of South Africa, Vol. 1. From the Early Times to 1885*, pp. 211-252 (Cambridge: Cambridge University Press, 2010). Jeffrey Peires, 'Paradigm deleted: The Materialist interpretation of the Mfecane', *Journal of Southern African Studies* 19 (1993): 295-314. Carolyn Hamilton, 'Restructuring within the Zulu royal house', *African Studies* 56 (1997): 85-113.

¹³ Colin de B. Webb and John Wright, 'Evidence of Lunguza ka Mpukane,' in Colin de B. Webb and John Wright, (eds.) *The James Stuart Archive of Recorded Oral Evidence relating to the History of the Zulu and Neighbouring Peoples, 6 vols.*, pp. 342 (Durban: Killie Campbell Africana Library, 1986).

¹⁴ Martin Hall, 'Dendroclimatology, rainfall and human adaption in the later Iron Age of Natal and Zululand,' *Annals of the Natal Museum* 22 (1976): 693-703; Tim Maggs, 'The Iron Age farming communities', in Andrew Duminy and Bill Guest, (eds.) *Natal and Zululand from Earliest Times to 1910. A New History*, pp. 28-48 (Pietermaritzburg: University of Natal Press, 1989). David Hedges, 'Trade and politics in southern Mozambique and Zululand in the eighteenth and early nineteenth

Interpretations of societal responses to the *mahlatlule* famine and the droughts of the 1820s vary. One line of reasoning put forward by Ballard argues that the subsistence crisis during the famine led to a breakdown of governance and the normal functioning of society in the Nguni-speaking chiefdoms, resulting in increased migration, raiding and violence as people sought food, security and protection from predatory groups. In turn, Ballard concludes that the resultant turmoil led to the development of a new social order and defensive state formation among the larger Mthethwa and Ndwendwe groups, the former of which was superseded by Shaka's Zulu kingdom.¹⁵

Eldredge, on the other hand, considers the interaction of climatic and political-economic changes as the main instigator of societal transformation. Cautious of promoting simplistic mono-causal explanations, Eldredge suggests that a complex interaction between factors such as reduced rainfall, severe drought, increasing socio-economic inequalities and marginalisation were principal stimuli for political formation in the early-nineteenth century. In this thesis, increasing political consolidation and socio-economic stratification resulting from responses to new trade opportunities in the late-eighteenth century produced inequalities in access to resources both within and between chiefdoms. This amplification of inequalities subsequently led to the breakdown of traditional strategies of averting famine, meaning the droughts of the early-nineteenth century resulted in severe and widespread famine. In contrast to Ballard, however, Eldredge notes that increased political centralisation and state formation in the first two decades of the nineteenth century reflected a process of diplomatic incorporation of people, land and resources into those chiefdoms that were more resilient to climatic stress, such as the Mthethwa polity, rather than a widespread breakdown in governance. Hannaford et al. are sympathetic to Eldredge's multidimensional approach and propose an interactive model that recognises both the non-linearity of complex systems and human agency as key to understanding the interactions between past climate variability and human activity.¹⁶

By the second decade of the nineteenth century, the smaller Zulu polity was under the rule of Senzangakona – Shaka's father – and was subordinate to Dingiswayo's Mthethwa chiefdom, while Shaka was gaining his reputation as a soldier. Upon Senzangakona's death in 1816, Dingiswayo installed Shaka as Zulu chief; when Dingiswayo was killed in 1817 as the

centuries' (Ph.D. diss., School of Oriental and African Studies, University of London, 1978); Thomas Huffman, 'Archaeological evidence for climatic change during the last 2000 years in southern Africa', *Quaternary International*, 33 (1996): 55-60; Karin Holmgren and Helena Öberg, 'Climate change in southern and eastern Africa during the past millennium and its implications for societal development', *Environment, Development and Sustainability* 8 (2006): 185-195; Matthew Hannaford et al., 'Climate Variability and Societal Dynamics in Pre-Colonial Southern Africa History (AD 900-1840): A Synthesis and Critique', *Environment and History* 20 (2014): 411-445. Matthew Hannaford and David Nash, 'Climate, history, society over the last millennium in southeast Africa', *WIREs Climate Change*, 7 (2016): 370-392. See also J. B. Mcl. Daniel, 'A Geographical Study of Pre-Shakan Zululand', *The South African Geographical Journal* 55 (1973): 23-31.

¹⁵ Charles Ballard, 'Drought and Economic Distress: South Africa in the 1800s', *The Journal of Interdisciplinary History*, 17 (1986): 359-387. The Nguni family of Bantu-speaking people who later formed the Zulu kingdom probably migrated into south-eastern Africa in the early-second millennium AD. They were predominantly pastoralists practicing shifting cultivation, see Thomas Huffman, 'The archaeology of the Nguni past', *Southern African Humanities* 16 (2004): 79-111.

¹⁶ Elizabeth Eldredge, 'Sources of Conflict in Southern Africa, c. 1800-30: The 'Mfecane' Reconsidered', *Journal of African History* 33 (1992): 1-35; Matthew Hannaford et al., 'Climate Variability and Societal Dynamics in Pre-Colonial Southern Africa History (AD 900-1840): A Synthesis and Critique', *Environment and History* 20 (2014): 411-445.

Mthethwa-Ndwandwe conflict reached its climax, it was Shaka who reunited the defeated Mthethwa and continued the incorporation and subordination of neighbouring chiefdoms into a centralised political unit that grew into the Zulu Kingdom. According to Deflem, Shaka enhanced the *amabutho* system and disciplined the army from the ideas of Dingiswayo, and both military innovations and diplomatic intervention allowed Shaka to expand his influence over much of the area between the Pongola and Tugela rivers (Figure 1). The Zulu Kingdom was highly stratified, with homesteads spread over hills and ridges all over the country, forming the basic production units. The King exercised authority over these homesteads, extracting surplus from them, and uniting them administratively into one large centralised political entity. All men reaching the age of puberty now had to serve in the Zulu army, and were gathered into age-sets. Guy notes that each man still had to derive his subsistence from his own labour but was also dependent on supplies from their 'father' homesteads.¹⁷

Rainmaking and ritual power (1818-1835)

As the Zulu kingdom grew, an important step taken by Shaka was to violently neutralise the powers of Zulu sorcerers, medicine-men and rainmakers (or *inyangas*). Hamilton and Deflem hold that, in this way, the King gained monopoly over supernatural practices, thereby extending his authority and strengthening his position as a link to ancestral spirits. By expelling all rainmakers from his kingdom, Shaka made it clear that only he could control the heavens. According to Gluckman, the religious and supernatural duties of the king were vested in the office of the kingship, so that the king's successor took over these duties. However, Shamase notes that, during Shaka's reign, loyalty was to the King as a person, not to the monarchy itself, while for later Kings the loyalty was to the institution of the monarchy.¹⁸

Hovland and Parrinder note that the King's ritual role in producing rain was held to be an important part of the powerbase in the Zulu Kingdom, and can be traced back to efforts made by Shaka to embody these powerful institutions under the King's domain. According to Weir, Shaka enhanced his power by calling on ancestors through dreams, to acquire powerful medicines and to make rain. When subordinating neighbours, Shaka also annexed the medicine and rainmaking skills of the defeated groups. In doing so, he removed the ritual power of the chiefs and centralised authority over the spiritual sphere as a part of social and political restructuring. Those who were seen as ritually powerful enough to threaten the Kingship would be killed.¹⁹

¹⁷ Mathieu Deflem, 'Warfare, Political Leadership, and State Formation: The Case of the Zulu Kingdom, 1808-1879', *Ethnology* 38 (1999): 371-391. Jeff Guy, *The Destruction of the Zulu Kingdom: The Civil War, 1879-1884*, (Pietermaritzburg: University of Natal Press, 1994).

¹⁸ Carolyn Hamilton, 'Restructuring within the Zulu royal house', *African Studies* 56 (1997): 85-113. Mathieu Deflem, 'Warfare, Political Leadership, and State Formation: The Case of the Zulu Kingdom, 1808-1879', *Ethnology*, 38 (1999): 371-391. Max Gluckman, 'The Kingdom of the Zulu of South Africa', in Meyer Fortes and Edward E. Evans-Pritchard, (eds.) *African Political Systems*, pp. 25-56 (London: Oxford University Press, 1967); Max Gluckman, 'The individual in a Social Framework: The Rise of King Shaka of Zululand', *Journal of African Studies* 1 (1974): 113-144. Maxwell Shamase, *The reign of King Mpande and his relations with the Republic of Natalia and its successor, the British Colony of Natal* (Ph.D diss., University of Zululand, 1999), 3.

¹⁹ Ingie Hovland, *Mission Station Christianity. Norwegian Missionaries in Colonial Natal and Zululand, Southern Africa 1850-1890*, (Leiden: Brill, 2013); Geoffrey Parrinder, *African Traditional Religion. Third edition*, (London: Sheldon Press, 1974); Jennifer Weir, 'Whose Unkulunkulu?', *Africa* 75 (2005): 203-219.

Callaway's writings illustrate how Shaka took control over ritual power, including this story of a local 'rain-doctor':

...the chiefs of the house of Uzulu used not to allow a mere inferior to be even said to have power over the heaven (...) ...Utshaka had said, "Let all the heaven-doctors be killed."

Weir further emphasises that Shaka could not have successfully incorporated surrounding groups without controlling and centralising the 'invisible' spiritual aspects of power such as rainmaking rituals and customs such as the *umkosi*, or 'first fruits festival', which placed tight control on the harvesting of grain across the kingdom.²⁰

After his death in 1828, Shaka was succeeded by his assassinator and half-brother Dingane. Although Dingane lacked Shaka's military skills and exercised a more relaxed discipline, Colenbrander notes that the Zulu kingship had acquired widespread political, economic and ideological legitimacy, and therefore the transition did not deteriorate the centralised power of the kingdom. Deflem describes how Mpande took over the throne in 1840, after having allied with the Voortrekkers and conspired in the killing of Dignane. Mpande ruled for 32 years, and after his death of old age he was formally succeeded by Cetshwayo in 1873, who became ruler of a ~300,000-strong population. Although some 44 years separated Shaka's rule from that of his nephew, Guy and Shamase hold that many of the features of Shaka's reign could still be recognised under Cetshwayo. In 1879, the Zulu Kingdom met its final defeat in the Anglo-Zulu War and became subjected to British administration under a variation of indirect rule. This included dividing the kingdom into thirteen territories under appointed chiefs. Three years later the Zulu territory was made a British protectorate, and in 1897 it became part of the Natal Colony.²¹

Droughts and social unrest in the mid- to late-nineteenth century

1835-1872: 'Nailing the ground'

An analysis of the climate history of Zululand and Natal by Nash et al., conducted in parallel with this study, reveals that southeast Africa experienced severe or multi-year droughts on eight separate occasions between 1836 and 1900 (Figure 2, Table II). In line with investigations in other parts of southern Africa conducted by Nash and Endfield, Kelso and Vogel, and Nash and Grab, the most severe of these dry spells was the drought of 1861-63 and the most

²⁰ Henry Callaway was a missionary for the Church of England to South Africa. He studied Zulu religious beliefs and other customs and was among the first to publish books on the subject, see Henry Callaway, *The Religious System of the Amazulu*, p. 390 (Springvale: John A. Blair, 1870), (Digital version; digitized by the Internet Archive in 2010 with funding from Indiana University). Jennifer Weir, 'Whose Unkulunkulu?', *Africa*, 75 (2005): 203-219.

²¹ Peter Colenbrander, 'The Zulu Kingdom, 1828-79', in Andrew Duminy and Bill Guest, (eds.) *Natal and Zululand from Earliest Times to 1910. A New History*, pp. 83-115 (Pietermaritzburg: University of Natal Press, 1989); Mathieu Deflem, 'Warfare, Political Leadership, and State Formation: The Case of the Zulu Kingdom, 1808-1879', *Ethnology* 38 (1999): 371-391. Jeff Guy, *The Destruction of the Zulu Kingdom: The Civil War, 1879-1884*, (Pietermaritzburg: University of Natal Press, 1994). Maxwell Shamase, 'The reign of King Mpande and his relations with the Republic of Natalia and its successor, the British Colony of Natal' (Ph.D diss., University of Zululand, 1999); Thomas McClendon, *White Chiefs, Black Lords. Shepstone and the Colonial State in Natal, South Africa 1845-1878* (Rochester: University of Rochester Press, 2010).

prolonged was that of 1895-1900. Six severe or multi-year wet periods are also recognised, the early-1890s being the wettest period of the nineteenth century. The results for 1836-1850 agree well with a recently published chronology of early-nineteenth century rainfall variability for KwaZulu-Natal derived from ships' logbook data by Hannaford et al.²²

Figure 2: Interannual rainfall variability across former Natal and Zululand for each of the austral summer rainy seasons between 1836 and 1900, reconstructed from documentary sources. CR indicates the confidence rating for each annual classification, where 3 indicates high confidence and 1 low confidence.²³

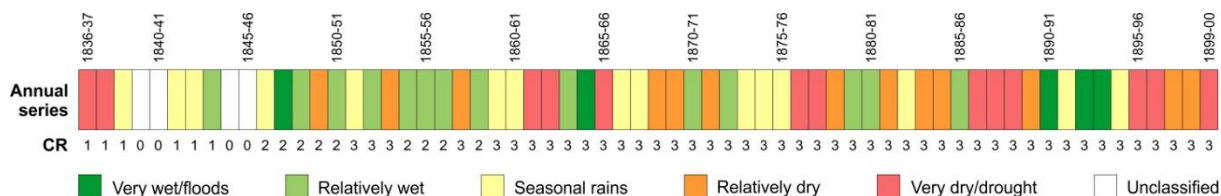


Table II: Drought episodes and wetter periods in former Natal and Zululand between 1836 and 1900, identified from historical sources.

Climatic condition	Rainy seasons affected
Severe or multi-year dry periods	1836-38, 1861-63, 1865-66, 1868-70, 1876-79, 1883-85, 1886-90, 1895-1900
Severe or multi-year wet periods	1847-49, 1854-57, 1863-65, 1879-81, 1890-91, 1892-94

This detailed chronological climatic framework permits us to explore the narratives of social upheaval and conflict during selected periods of anomalous weather. The first multi-year drought (1836-38) falls prior to the widespread establishment of mission stations across Zululand; as a result, we lack detailed local information on societal responses for this event. Most of the following 25 years appear to have been relatively wet across the region, with only three dry spells identified from historical sources. As these dry periods lasted only one season, their impact appears to have been more limited.

In contrast, both documentary and oral sources describe societal responses to the multi-year 1861-63 drought. This was termed the '*Mbete* famine' in Zulu oral evidence after a rain doctor named Mbete of the Ngcobo people near the mouth of the Tugela. Oral accounts – in

²² David Nash et al., 'Annual and seasonal rainfall variability in southeast Africa during the nineteenth century reconstructed from documentary sources', *Climatic Change* 134 (2016): 605–619. David Nash and Georgina Endfield, 'Splendid rains have fallen: links between El Niño and rainfall variability in the Kalahari, 1840-1900', *Climatic Change* 86 (2008): 257-290; Clare Kelso and Coleen Vogel, 'The climate of Namaqualand in the nineteenth century', *Climatic Change* 86 (2007): 357-380; David Nash and Stefan Grab, 'A sky of brass and burning winds': Documentary evidence of rainfall variability in Lesotho, 1824-1900', *Climatic Change* 101 (2010): 617-653. Matthew Hannaford et al., 'Early-nineteenth-century southern African precipitation reconstructions from ships' logbooks', *The Holocene* 25 (2015): 379-390.

²³ For more detail on rainfall variability, see David Nash et al., 'Annual and seasonal rainfall variability in southeast Africa during the nineteenth century reconstructed from documentary sources', *Climatic Change*, DOI.

particular the evidence of Mtshayankomo ka Magolwana – describe the severe impacts of this drought upon the land:

*There was a great drought; it was called the drought of Mbete. The land was destroyed. The king ordered the people to be sent to ask for rain from Langalibalele ka Mtimkulu... The cattle died from lungsickness... the rivers dried up completely. Izinongwe plants were dug up and eaten, together with ubogo plants. Wild figs were picked, pounded up, and dried.*²⁴

There are very many reports of unrest in the historical documentary records from these years as compared with normal or wet periods. The most common form of unrest, reported by both British and Norwegian missionaries and James Stuart's interviewees, is linked to local beliefs about rain control. In the archives, we find many descriptions of how people were accused of 'nailing the ground' – usually by driving either wooden pegs or metal nails into hill-tops – to prevent rain, thunder or lightning. There are several suggestions that the 'Natal kafirs'²⁵ or 'outsiders' were responsible for this activity, but local Zulus were also blamed and killed. The following quote, from the SPG missionary at Inkandhla, Mr Jones, illustrates how British missionaries perceived and reported these incidents:

*Sept 30th [1862]. Arrived here this afternoon from Kwamagwaza... This is a very dry season and the people have been looking out long and anxiously for rain. Planting is delayed in consequence; and at the present time rain seems to be their first and only thought. The [rain] doctors being at fault have laid the blame at the Natal Kafirs who were in the country trading, accusing them of nailing the heavens by putting wooden pins in the ground at various places all round the land. Impis (Commandos) have been ordered and the wooden pins searched for, and, according to reports, found. Kafirs caught alone – that is, not in the company of a white man – have been seized, bound, roughly treated and hunted out of the country. Yet the rain holds up, none comes. On my way, one of the young men accompanying me asking said "And you too pray for rain in-the-worshipping?" I answered in the affirmative he said in reply "That is good – it is much needed".*²⁶

The evidence of Bikwayo and James Stuart's interpreter, Ndukwana, also attributes nailing the ground to 'outsiders':

*The medicine pegs were driven into the ground by outsiders. In time of drought all the inmates of a kraal would go out and hunt in the fields and on the hills for pegs driven in by strangers. Anything found would be taken and thrown into a river or stream. Pegs will be driven all about the kraal.*²⁷

²⁴ Colin de B. Webb and John Wright, 'Evidence of Mtshayankomo ka Magolwana,' in Colin de B. Webb and John Wright, (eds.) *The James Stuart Archive of Recorded Oral Evidence relating to the History of the Zulu and Neighbouring Peoples*, 6 vols., pp. 108-111 (Durban: Killie Campbell Africana Library, 1986).

²⁵ The term Natal kafir (or Natalkaffir/Natalkafir) was used by whites for the indigenous (black) population of the Natal Colony. The term is now considered offensive.

²⁶ USPG E13, Mr. Jones, Inkandhla, 1 December 1862

²⁷ Colin de B. Webb and John Wright, 'Evidence of Bikwayo', in Colin de B. Webb and John Wright, (eds.) *The James Stuart Archive of Recorded Oral Evidence relating to the History of the Zulu and Neighbouring Peoples*, 6 vols., p. 69 (Durban: Killie Campbell Africana Library, 1986).

A similar report is given by the Norwegian missionary, Rev. Oftebro of the Eshowe mission station:

It has been terrible to hear the Zulus tell about the kaffirs from Natal that has been arrested and molested because they have been suspected of, and partly admitted to, putting nails in the ground in order to prevent rainfall. It's been very dry, but after the kaffirs were taken it has started to rain. This gives the Zulus strength in their superstition.²⁸

The Norwegian missionary, Rev. Wettergreen, of the Entumeni mission, provides further details of the method through which rain was supposedly withheld:

The Zulus have the belief that their rain doctors by the help of their sorcery can make rain. Thus the King last year sent for a doctor from Natal by the name of Umbete. Umbete arrived and started to grind rain; but before the fruits of Umbete's work could be seen, there were sent for another doctor, by the name of Jonas, who also arrived. This insulted Umbete, who swore that the Zulus should have to pay. As a revenge, and as it is said, also affected by Umunase, the Natal living mother of the fallen prince Umbulazi, has Umbete sent some Nataalkaffirs over to Zululand with 'izikonkwane'; nails or wooden pegs, that are thumped into the ground to prevent rain. These pegs are smudged with a dough of flour, wrapped in sugarcane leaves, then some black powder is put on top, and on top of that again some red substance; the red is supposed to symbolise that the heaven will become hard and red, so that no rain will fall. It is easy to understand that the Zulus believe as much in this effect as in rainmaking, and that they punish the ones that practise such evil.²⁹

Rev. Wettergreen also notes that the situation posed great restriction on movement for the indigenous population:

There was a command that all Nataalkaffirs, that walked alone without the company of a white man, should be tied. As a result many Nataalkaffirs were tied up and robbed, some killed, though not only due to this reason, but it was not in the command from the prince that they should be killed... The enormous impact this has on the connection between the mission stations must be understood. People that are in our labour do not dare to walk alone with a letter or a package, without the company of a white man, and that counts for both Zulus and Nataalkaffirs. When they carry a package or a letter they are often seen as being in the service of a white man, but in places where they are not well known, they are taken for amakafula; Nataalkaffirs; and are naturally put under the same torture as they are; it does not help to say where they come from or where they are going, in a country where all people are liars. We cannot ask our people to run errands when we know that they can get tied up.³⁰

The drought of 1861-63 was followed by two relatively wet years, during which there is no mention of social unrest and conflict in our material. However, drought returned in 1865-66,

²⁸ MHS, Mission Archives, A1045-139-12, Rev. Oftebro, Eshowe, 29 October 1862

²⁹ MHS, Mission Archives, A1045-130-12, Rev. Wettergreen, Entumeni, 27 October 1862

³⁰ MHS, Mission Archives, A1045-130-12, Rev. Wettergreen, Entumeni, 27 October 1862

and with it several accounts of conflict related to the suspected nailing of the ground. For example, Rev. Schreuder of the Entumeni mission reports:

*The summer rain has now started. This year we have also had 'heaven-nailing' upheavals in the country due to long duration drought. This year has been very bloody. The inhabitants of nine farmsteads have been massacred. We have now had one week of splendid rain, so we started to hope for better times regarding these nailing-incidents, but as long as nailing-lies are about it is not easy to send our natives around the country.*³¹

Two months later, Rev. Larsen of the Inhlasatye mission notes:

*In October we only had 4 small showers. Quite insufficient to soften the hard ground. Calling a rainmaker from the colony did not help. Not until November did he have success (rain arrived). Thus, we had the same nailing-incident as a few years back. But not in the lowland, where it rained well. Several people were killed because they were accused of nailing the ground to prevent rain.*³²

A similar pattern is reported during the relatively dry rainy season of 1871-72, when the Norwegian missionary priest Rev. Gundersen writes that the Zulus have killed a rain-doctor by "...tying him to a log and throwing him into the river Tugela, where he was eaten by greedy crocodiles...". Gundersen further notes that 1871-72 was a particularly violent year, during which an executioner was sent to four farmsteads, with several people killed at each locality³³. In addition to the murders and molestations, we can also read from the letters that Zulus are banned from travelling during droughts, unless in the presence of a white person. If travelling alone they risked accusations of being 'Natal-Kaffirs' with intentions of 'nailing the ground'. There is evidence, however, of the ban being ignored in some parts of the country, as Robertson of KwaMagwaza reports:

*I am afraid we are going to have another year of famine. In some Districts the crops are an utter failure and the people have dispersed themselves elsewhere in search of food. One party has passed this place and I saw another at Entseleni.*³⁴

The preceding empirical evidence suggests that unrest and widespread killings were indirectly linked to droughts, primarily through accusations of rain control related to the local belief of 'nailing the ground'. To our knowledge, no previous studies have documented the function and origin of this practice. However, Berglund's book, *Zulu thought-patterns and symbolism*, includes a description of a similar practice whereby sharp sticks, protruding stones and boulders lying on hills are perceived to hinder rain. Berglund notes "When there is a drought, people are sent to remove all upright and protruding sticks and stones, especially on elevated hills and mountains". According to popular belief, this is because they resemble spears

³¹ Letter by Rev. Hans Schreuder dated 10. November 1865, Entunemi mission station, printed in *Norsk Missions-Tidene*, XXI (1866).

³² MHS, Mission Archives, A1045-131-3. Rev. Larsen, Inhlasatye, 8 January 1866

³³ MHS, Mission Archives, A1045-132-11, Rev. Gundersen, 4 July 1872

³⁴ USPG E9a, R. Robertson, Kwamagwaza, 7 April 1862

pointing at the heavens, which is a sign of disrespect to the 'Lord-of-the-sky'. The sticks and stones are also suggested to cause fear in the sky, making it afraid to release rain.³⁵

1872-1900: Narratives of migration and dispersal

Although it is difficult to pinpoint the precise timing, references to local unrest related to accusations of 'nailing the ground' appear to stop after the 1871-72 dry period. Coincidentally, this is also the last year of Mpande's reign. Historical accounts associated with the drought of 1876-79 are dominated by reports of preparations for the 1879 Anglo-Zulu war, including the evacuation of all British, German and Norwegian missionaries from Zululand to the Natal colony in 1878. However, after the war, which resulted in the fall of Cetshwayo and the annexation of Zululand by the British, missionary narratives of responses to drought shift away from accounts of unrest and murder to reports of weakness from hunger, population dispersal and the enforced alteration of traditional cultural responses to weather extremes.³⁶

As an illustration, during the relatively dry rainy season of 1881-82, in place of killings and unrest linked to accusations of rain control, we find several references to migration and general processes of population dispersal. For instance, the Norwegian missionary Rev. Dahle reports from Empangeni that people were migrating from the lowlands to the highlands where the drought had been less severe:

*As a consequence of the lack of rain this summer both the kassa and amatabele harvest here in the lowland failed. Many people are moving to the highlands where the drought has been less severe, where they stay with relatives and friends, others are moving to Natal to seek employment, while the ones that stay behind must look after the farms and cattle.*³⁷

The British missionary, J.M. Samuelsson, reports similar observations:

*The congregations have been rather small owing to the fact that very many of the people had to leave their homes in search of food in other parts of the country.*³⁸

Reports during the multi-year drought of 1883-85 include descriptions of people being too hungry to fight. Rev. Oftebro, for example, notes:

*For the time being it is quiet everywhere due to hunger, but the general opinion is that as soon as people have enough food there will be war again.*³⁹

The final dry period for which significant documentation is available is the multi-year drought of 1895-1900. During this protracted drought, the onset of which is potentially linked to the major El Niño event of 1896-97, the region experienced the intertwined factors of low rainfall, locusts and cattle plague (rinderpest), which resulted in a severe decline in agricultural production. Despite the extent of food and cattle shortages, responses to droughts do not appear to be associated with violence or conflict, but rather in the form of population dispersal and mass migration, especially rural-urban migration with the growth of wage labour in

³⁵ Axel-Ivar Berglund, *Zulu Thought-Patterns and Symbolism*, p. 58 (Bloomington: Indiana University Press, 1989).

³⁶ MHS, Mission Archives, Lower Tugela District, A1045-134-12, Rev. Oftebro, 21 May 1878

³⁷ MHS, Mission Archives, A1045-135b-4, Rev. Dahle, Empangeni, 10 May 1882

³⁸ USPG E37, J.M. Samuelson, St Paul's, Zululand, 1 June 1882

³⁹ MHS, Mission Archives, A1045-136-11, Rev. Oftebro, 5 January 1885

Johannesburg and Durban.⁴⁰ The Norwegian missionaries, Rev. Braatvedt and Rev. Steenberg, for example, provide details of the extent and nature of the out-migration:

Over a long period we could almost daily witness crowds of men and boys walking past, on their way to Natal to search for work. Others – wives and girls – were walking to the coast to buy or get some potatoes from their relatives.

Then a revolution occurred, a radical process of dispersal among the people: quite a few went to Natal and Johannesburg to find work in order to make an income for their homes; others scattered around the country, partly to beg, partly to find temporary shelter to relatives or acquaintances. Most homes contained only few people. They were always on the move to somewhere where a little food could be obtained, higher places were a bit better off, while lower parts of the country were very crowded.⁴¹

The American missionary, Rev. Ransom, further notes:

Migrations to Durban and Johannesburg have increased, and this year several women and girls have been induced to try their fortunes at that Babylon of So. Africa – Johannesburg.⁴²

Subsequent oral evidence from Bikwayo and Ndukwana – interviewed by Stuart in 1903 – also reveal important local narratives of an enforced change in traditional responses to drought:

It is a great misfortune [that] natives who can cause rain [are] being directed not to attempt to do so. Now we are afraid of the government for it does not allow this. We cannot understand this as the government would benefit because their trees would grow, and people would be free from hardship, having enough to eat, and be better able to pay money. Rain doctors are just those who should not be disallowed. Year by year we look to agriculture. We reap and look forward to next year's crops. We depend on what comes out of the ground. We do not preserve or store anything. The government keeps us from that occupation [rainmaking], and food. The government ought to be considerate in so bad a year as this, and allow us to endeavour to find a last way out. If that were allowed there would certainly be rain.⁴³

In summary, over the last three decades of the nineteenth century there was a shift in the nature of the response of Zulu populations to single- or multi-year drought episodes. Unrest and violence associated with accusations of rain control were replaced, at some point during

⁴⁰ For more on the 1896-97 El Niño event, see David Nash and Stefan Grab, 'A sky of brass and burning winds': Documentary evidence of rainfall variability in Lesotho, 1824-1900', *Climatic Change*, 101 (2010): 617-653. Charles Ballard, 'Drought and Economic Distress: South Africa in the 1800s', *Journal of Interdisciplinary History* 17 (1986): 359-387.

⁴¹ MHS, Mission Archives, A1045-140b-7, Rev. Braatvedt, 8 December 1896; MHS, Mission Archives, A1045-140b-8, Rev. Steenberg, 15 August, 1896

⁴² Harvard, Houghton Library, ABC 15.4, vol. 13, Southern Africa, Zulu Mission 1890-99, Charles N. Ransom.

⁴³ Colin de B. Webb and John Wright, 'Evidence of Bikwayo', in Colin de B. Webb and John Wright, (eds.) *The James Stuart Archive of Recorded Oral Evidence relating to the History of the Zulu and Neighbouring Peoples*, 6 vols., p. 69 (Durban: Killie Campbell Africana Library, 1986).

the early-mid-1870s, by population dispersal, culminating in large scale migration at the close of the century. It is very likely that this came as a result of the imposition of British colonial administration.

Discussion

Viewing the preceding accounts of drought responses in the light of known political and social changes in Zululand during the nineteenth century, an interesting narrative emerges. With the caveats that (i) the available historical reports are relatively limited, and (ii) the majority of accounts are seen through the eyes of outsiders, it is possible to draw some generalisations concerning climatic events and social unrest. There is no doubt that weather, and especially periods of excess rainfall/drought, had a major impact upon local subsistence economies in southeastern Africa. Hence, weather also played a major role in Zulu social and political organisation, control regimes and cultural beliefs. During the early-nineteenth century, there are well documented accounts of mass migration, population dispersal and socio-political transformation. This was a function of multiple factors, both environmental and societal. The droughts of the early-nineteenth century had a major impact on society, due, at least in part, to a progressive dependence on maize and heightened inequality within and between chiefdoms. Increasing political centralisation in the rule of Dingiswayo and Shaka also entailed more tightly enforced laws and military customs.

As noted earlier, from the mid-1820s up until the Anglo-Zulu war in 1879, King Shaka and his successors, made great efforts to gain monopoly over rainmaking, medicine and ritual practices, which resulted in the killing and expulsion of traditional rain-doctors. By embodying these powerful institutions, the King strengthened and centralised his powerbase and also gained greater coercive control over newly subordinate groups. He also placed the kingdom at the centre of the supernatural realm and positioned the King in a direct line to divine powers. This was, however, a perilous position, since the King risked rebellion if he did not deliver rain, as reported elsewhere in southeast Africa by Huffman. Thus, to secure power in times of hardship, including droughts, blame was transferred from the royal seat to external powers or 'outsiders', such as the 'Natal-Kaffirs' or local disobedient individuals, who were accused of being sorcerers and were thus brutally killed. The myth of the impacts of 'nailing the ground', similar to other features of Zulu mythology, was actively engaged to divert peoples' frustrations. In this way, the King managed to both give an explanation as to why he no longer controlled the skies to the benefit of his people, but also to generate fear of questioning the authority of the Kingdom. It is, of course, possible to interpret the act of 'nailing the ground' as representing one facet of the conflict between the Zulu Kingdom and, for instance, royal heirs that took refuge in Natal (as described by Rev. Wettergreen above). The employment of such 'supernatural warfare' by rival groups would have been perceived by Zulu powers as a real threat, and provided a strong incentive for the use of brutal force against apparent (and real) enemies of the state.⁴⁴

Another noteworthy aspect reported by missionaries in the mid-nineteenth century is that people were prohibited to travel during droughts, unless in the presence of a white person, because they then could be accused of being 'Natal-Kaffirs' with intentions of 'nailing the ground' or regarded as accomplices to such crimes. Although this ban was not recognised in all parts of Zululand, it had the effect of constraining potential rebellion against the king for

⁴⁴ Thomas Huffman, *Handbook to the Iron Age: The archaeology of pre-colonial farming societies in southern Africa* (Pietermaritzburg: University of KwaZulu-Natal Press, 2007). MHS, Mission Archives, A1045-130-12, Rev. Wettergreen, Entumeni, 27 October 1862.

failing to deliver rain. In addition, population dispersals and mass migrations – previously common responses to those worst affected by and least able to cope with droughts – were effectively hindered through the ban on travel.

A further striking feature from the historical record is that the accounts of accusations of ‘nailing the ground’ apparently end around the death of Mpande. After the Anglo-Zulu war, and the subsequent annexation of Zululand by the British, we find no report of such accusations, nor any references to explanations for drought associated with this practice. This strengthens the suggestion that such accusations were used for political gain, and to secure the power of the King in times of distress. Following the establishment of indirect British rule, the power balance in Zululand was disrupted and the Zulu Kingdom lost its aura of invincibility and divinity. The implications of this power-shift are most striking in the descriptions of the protracted droughts towards the end of the nineteenth century. Instead of reports of rain control, which might be expected based on material from the mid-1900s, there are no such references from this period. Rather, we find narratives of the mass dispersal of people, described as a *revolution* by missionaries, including both local movements from the coast to inland areas, and also longer migrations to urban centres and other parts of the country. This mirrors the way in which populations reacted to large-scale subsistence crises prior to the establishment of the Zulu Kingdom. Seen through this lens, we view the killings, molestations and incidents of local unrest reported during droughts in the times of the sovereign Zulu Kingdom as a coercive means of controlling people and maintaining authority. This interpretation offers an explanation for the reports of heightened conflict, unrest and murder related to drought years that we have found in historical and oral sources, which contrast markedly with contemporary research into climate-unrest relations in Africa such as that reported by Adano et al. and Butler & Gates.⁴⁵

Climate and conflict in nineteenth century Zululand: some conclusions

At the beginning of this paper we questioned how conflict and climate coincide, and whether there is support for the hypothesis that extreme or anomalous weather leads to greater unrest. We have addressed these issues through primary examination of the historical case of later-nineteenth century Zululand. In our historical records there is an overrepresentation of reports of local conflict, killings and unrest in many dry or drought years. However, since some very dry periods are associated with violence (most notably those during the early- and mid-nineteenth century), whilst those of the latter nineteenth century are not, it is necessary to look more closely at the contextual socio-political framing of these conflicts. In line with Butzer, we find that the potential for conflict, unrest and violence during or after extreme weather events is strongly related to the roles of leaders, elites, and ideologies.⁴⁶

Although droughts might be associated with periods of violence and unrest, as occurred during the 1860s under the rule of Mpande, they may also be associated with mass migration and the transformation of socio-political structures, as occurred in the early-nineteenth century and under British rule at the end of the century. These outcomes are contingent upon the role of leaders and local power structures, and the willingness and ability of leaders to

⁴⁵ Warrio Adano et al., ‘Climate change, violent conflict and local institutions in Kenya’s drylands’, *Journal of Peace Research* 49 (2012): 65-80; Christopher Butler and Scott Gates, ‘African range wars: Climate, conflict and property rights’, *Journal of Peace Research* 49 (2012): 23-34.

⁴⁶ Karl Butzer, ‘Collapse, environment, and society’, *PNAS* 109 (2012): 3633-3639; Charles Ballard, ‘Drought and Economic Distress: South Africa in the 1800s’, *Journal of Interdisciplinary History* 17 (1986): 359-387.

yield this power. It must also be noted that these droughts occur under variable demographic and agricultural conditions; in particular, higher populations and concentrations of both people and livestock were present in the region during the 1890s compared to the 1860s. In addition, and as Ballard describes, the 1890s witnessed the combination of multiple stresses in the form of drought, cattle plague and locust outbreaks. This may, when juxtaposed with the lack of the political control-mechanisms earlier employed by the independent Zulu Kingdom, and the new colonial British policy that, according to McClendon, encouraged migration, have amplified the dispersal process. Overall, the case of nineteenth century Zululand illustrates the complexity of interactions between climate, society and culture, and, echoing authors such as Gleditsch and Gemenne et al., strengthens the need for a thorough scrutiny of the narratives of unrest and conflict in specific socio-cultural contexts.⁴⁷

⁴⁷ Charles Ballard, 'Drought and Economic Distress: South Africa in the 1800s', *Journal of Interdisciplinary History* 17 (1986): 359-387. Thomas McClendon, *White Chiefs, Black Lords. Shepstone and the Colonial State in Natal, South Africa 1845-1878* (Rochester: University of Rochester Press, 2010). Nils Gleditsch, 'Whither the weather? Climate change and conflict', *Journal of Peace Research*, 49 (2012): 3-9. François Gemenne et al., 'Climate and security: evidence, emerging risks, and a new agenda', *Climatic Change* 123 (2014): 1-9.